UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/520,171	01/04/2005	Jorkki Hyvonen	3501-1094	9230

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EXAMINER
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ART UNIT	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

		Application No.	Applicant(s)
Office Action Summary		10/520,171	HYVONEN, JORKKI
		Examiner	Art Unit	
		Michael C. Colucci	2626	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.
2a)☐ This action is **FINAL.** 2b)☒ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>8-15</u> is/are pending in the application.
    4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) <u>8-15</u> is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☒ The drawing(s) filed on <u>04 January 2005</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.
    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    a)☐ All b)☒ Some * c)☐ None of:
      1.☒ Certified copies of the priority documents have been received.
      2.☐ Certified copies of the priority documents have been received in Application No. _____.
      3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date <u>1/04/2005</u>.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in **Graham v. John Deere Co., 383 U.S. 1, 148
USPQ 459 (1966)**, that are applied for establishing a background for determining
obviousness under 35 U.S.C. 103(a) are summarized as follows: **(See MPEP Ch.
2141)**

      a.   Determining the scope and contents of the prior art;
      b.   Ascertaining the differences between the prior art and the claims in issue;
      c.   Resolving the level of ordinary skill in the pertinent art; and
      d.   Evaluating evidence of secondary considerations for indicating
         obviousness or nonobviousness.

2.   Claims 8-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Ballard et al US 5377281 A (herein after Ballard) in view of Jost et al US 7043439

(herein after Jost).

Re claims 8, 12, 13, and 15, Ballard teaches "a method for searching for an input

symbol string (Ballard col 7 line 60 – col 8 line 52) among a set of symbol strings,

comprising: creating a trie data structure (Ballard Fig. 4 & col 7 line 10-36) of symbol

strings, wherein the symbol strings are grouped into branches in such a manner that the

symbol strings beginning with the same symbols belong to the same branch (Ballard col

7 line 10-36), and the symbol strings in the same branch divide into new branches at the

symbols (Ballard col 7 line 10-36), from which onwards the symbols strings differ from

each other, receiving an input formed of an input symbol string, proceeding from the

starting point of the trie data structure along a branch to a calculation point indicated by

the next symbol"

(The teaching discloses a conventional procedure of traveling through branches

and nodes of a trie and a system that accepts lines of text through optical character

recognition OCR and the line contain strings of characters. The teaching discloses

branches that form new branches where strings having the same starting symbol

combined together and different strings in comparison to one another as the branch

continues downward.)

"Calculating distances at the calculation point between a sample symbol string

formed by the symbols of the calculation point of the branch in question and the

calculation points preceding it and the input symbol string by comparing (Ballard col 7

line 60 – col 8 line 52) these in alternative ways (Ballard col 7 line 60 – col 8 line 52)"

(The teaching discloses a process that selects the most probable path, having

the process select which leaf would have the lower path cost and whether it is useful to

continue or not. A path is construed as distance The teaching discloses the

determination of a path by comparing the path cost the current node against the lowest

cost found, where if the most optimistic cost is higher (by more than a preselected

threshold value) than the cost of the highest-cost candidate that has not been

discarded, then that branch and all branches below it are not considered further.)

"Calculating at the calculation point also the smallest possible length difference

(Jost col 17 line 18-32) corresponding to each distance that indicates how much the

length of the remaining part of the input symbol string not examined in the distance

calculation differs from the lengths remaining in the symbols strings passing through the

calculation point (Ballard fig. 6 & fig. 7), and calculating on the basis of each distance

and corresponding length difference a reference value *(Ballard col 7 line 37-59)"*

(The teaching discloses that while traversing a branch, an expense/cost is

incurred in connection with the traversal relative to the path that must be taken to reach

a leaf or termination point of branching where a word pair or match is found. A

reference value is construed as a cost, which refers to a path length.)

However Ballard fails to teach the smallest possible length difference between

symbols in a string. Jost teaches records that comprise the leaves of a hierarchal tree

(Jost col 19 line 39-46 & fig. 8). Jost also teaches the calculation of score predictions

where a process repeats to find paths using a sequence of questions and predicted

answers to reach each record and the shortest path length reach record is selected and

an average of the shortest path lengths is taken wherein the average is weighted by the

current probability for each respective record. Therefore, the combined teaching of

Ballard and Jost as a whole would have rendered obvious calculating the smallest

length difference.

"Selecting repeatedly the next branch to follow to the calculation point indicated

by the next symbol (Ballard fig. 6 & fig. 7), at which said calculation is repeated for the

new calculation point (Ballard fig. 6 & fig. 7), said selection of the next branch being

performed in such a manner that next the routine (Ballard fig. 6 & fig. 7) proceeds from

the calculation point, from which the lowest reference value (Ballard fig. 6 & fig. 7) has

been obtained as result"

(The teaching demonstrates the recursive behavior of the process to find the

path with the lowest cost. The teaching also demonstrates calculation points of cost

within a routine depicted in figures 6 and 7. By iterating within the routine, the a lowest

cost will be found and the routine terminated. This limitation is construed to be the

repetition of previous steps as a routine to produce an optimal result)

"After the calculation has terminated (Ballard fig. 6 and fig. 7), selecting one or

more symbol strings (Ballard fig. 6 and fig. 7) having the shortest distance (Jost col 17

line 18-32) to the input symbol string on the basis of the performed calculations, and

using the selected symbol string(s) (Ballard col 7 line 60 – col 8 line 52) to produce a

response (Ballard fig. 5)"

(A response is construed to be the output of the system after a routine is

executed. The teaching discloses an output of a system after the formation of a tree

structure and also the termination of a routine based on the path length and whether or

not there are additional strings to be analyzed from a text.)

However Ballard fails to teach the smallest possible length difference between

symbols in a string. Jost teaches records that comprise the leaves of a hierarchal tree

(Jost col 19 line 39-46 & fig. 8). Jost also teaches the calculation of score predictions

where a process repeats to find paths using a sequence of questions and predicted

answers to reach each record and the shortest path length reach record is selected and

an average of the shortest path lengths is taken wherein the average is weighted by the

current probability for each respective record. Therefore, the combined teaching of Ballard and Jost as a whole would have rendered obvious calculating the smallest length difference through repetition of a routine based on calculations of distance to produce a response.

Re claim 9, the combined teaching of Ballard and Jost disclose a "method as claimed in claim 8, comprising comparing the distance of the symbol string or strings used to produce the response (Ballard fig. 6 & fig. 7) and that of the input symbol string with a predefined maximum distance (Ballard col 8 line 30-41), and changing the produced response to indicate that the input symbol string was not found if the distance exceeds the maximum distance (Ballard fig. 6 & fig. 7)"

Re claim 10 and 14, the combined teaching of Ballard and Jost disclose a "method as claimed in claim 8, comprising when selecting the branch (Ballard col 7 line 10-36 & fig. 4), comparing said lowest reference value with the predefined maximum distance (Ballard fig. 6 & fig. 7), and terminating the calculation if the lowest reference value exceeds the maximum distance (Ballard fig. 6 & fig. 7)"

Re claim 11, the combined teaching of Ballard and Jost disclose a "method as claimed in claim 8, comprising when selecting the branch, checking whether calculation is already done for the last calculation point on one of the branches distance (Ballard fig. 6 & fig. 7), and terminating the calculation, if it turns out that for the last calculation point of one of the branches a reference value has been obtained that is lower than the reference values obtained for all the other calculation points distance (Ballard fig. 6 & fig. 7)"

Contact

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael C. Colucci whose telephone number is (571)-270-1847. The examiner can normally be reached on 7:30 am - 5:00 pm, Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richemond Dorvil can be reached on (571)-272-7332. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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